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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,722	05/24/2001	Frank Patrick Bologna	BH-0102	3271
7590 04/21/2005			EXAMINER	
ROBERT A. BROWN			FAN, CHIEH M	
P. O. BOX 2127			ART UNIT	
NORTHBROOK, IL 60065-2127			PAPER NUMBER	
			2634	

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

3m

<b>Office Action Summary</b>	<b>Application No.</b> 09/905,722	<b>Applicant(s)</b> BOLOGNA ET AL.	
	<b>Examiner</b> Chieh M Fan	<b>Art Unit</b> 2634	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 May 2001 and 30 December 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-103 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-103 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. The brief description of the drawings in the specification of the instant application filed 12/30/02 indicates that there are 17 figures. However, there are only four figures submitted on 5/24/01 in the instant application. None of the 4 figures appears to be related to or consistent with the description in the specification. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

### ***Specification***

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

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The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

In particular, the abstract contains the word "disclosed" in line 1, which should be avoided.

### ***Claim Objections***

3. Claims 1-103 are objected because the claims are replete with informalities and indefinite language of lacking of antecedent basis. Examples of informalities will be given only for the independent claims. However, the applicants are requested to review the whole set of claims and correct all of the errors.

Regarding claim 1, "the data register" in line 1 should be changed to --- a data register ---; "those samples of the input distorted waveform" in lines 1-2 should be changed to --- samples of an input distorted waveform ---; "that portion of the joint ISI-canceling" in line 4 should be changed to --- a portion of a joint ISI-canceling ---; "the ISI-cancellation process" in line 5 should be changed to --- an ISI-cancellation process ---; "the equalizer FF weights coefficient values" in lines 6-7 should be changed to --- equalizer FF weights coefficient values ---; "the inner products" in line 8 and in line 10 should be changed to --- inner products ---; "the ISI cancellation error signal" in line 14 should be changed to --- an ISI cancellation error signal ---; "the equalizer weight update" in line 15 should be changed to --- an equalizer weight update"; "the criterion for ISI cancellation" in line 15 should be changed to --- a criterion for ISI cancellation ---;

“the MF constraint criterion” in line 17 should be changed to --- a MF constraint criterion ---; “the constraint waveform” in lines 18-19 should be changed to --- a constraint waveform ---; “a constraint waveform” in line 20 and inline 21 should be changed to --- the constraint waveform ---.

Regarding claim 52, “the inner product computation” in line 1 should be changed to --- an inner product computation ---; “the MF constraint criterion” in lines 1-2 should be changed to --- a MF constraint criterion ---; “the  $L_w$  multiplier elements of the multiplier bank” in line 3 should be changed to ---  $L_w$  multiplier elements of a multiplier bank ---, “L” inline 3 is undefined; “the constraint waveform with the contents of only the  $L_w$  central registers of the equalizer FF register bank” in lines 4-5 should be changed to --- a constraint waveform with contents of only  $L_w$  central registers of an equalizer FF register bank ---; “the  $L_w$  central summing nodes of the bank of summing nodes” in line 6 should be changed to ---  $L_w$  central summing nodes of a bank of summing nodes ---.

Regarding claim 53, “those samples of the input distorted waveform” in line 3 should be changed to --- samples of an input distorted waveform ---; “the equalizer weight sub-register banks” in line 5 should be changed to --- an equalizer weight sub-register banks ---; “the constraint waveform” in line 9 should be changed to --- a constraint waveform ---; “a constraint waveform” in line 10 and inline 11 should be changed to --- the constraint waveform ---; “that portion of the joint ISI-canceling” in line 15 should be changed to --- a portion of a joint ISI-canceling ---; “the ISI-cancellation process” in line 16 should be changed to --- an ISI-cancellation process ---; “the inner products” in line 17 and in line 19 and in line 21 should be changed to --- inner products

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---; "the formation of the equalized signal" in lines 21-22 should be changed to --- a formation of an equalized signal ---; "the error sequence" in line 23 should be changed to --- an error sequence ---; "that portion of the time-multiplexing process" in line 25 should be changed to --- a portion of a time-multiplexing process ---; "the MF constraint processing" in lines 27-28 should be changed to --- a MF constraint process ---; "the MF constraint error" in line 29 should be changed to --- a MF constraint error ---; "a clock to control the adjustment" in line 34 should be changed to --- a clock to control an adjustment ---; "the equalizer weight update" in line 38 should be changed to --- an equalizer weight update"; "the criterion for ISI cancellation" in line 38 should be changed to --- a criterion for ISI cancellation ---; "the MF constraint criterion" in lines 40-41 should be changed to --- a MF constraint criterion ---; "the measure of orthogonality" in line 42 should be changed to --- a measure of orthogonality ---; "the constraint level" in line 44 should be changed to --- a constraint level ---.

Regarding claim 103, "the inner product computation" in line 1 should be changed to --- an inner product computation ---; "the MF constraint criterion" in lines 1-2 should be changed to --- a MF constraint criterion ---; "the  $L_w$  multiplier elements of the multiplier bank" in line 3 should be changed to ---  $L_w$  multiplier elements of a multiplier bank ---, "L" in line 3 is undefined; "the constraint waveform with the contents of only the  $L_w$  central registers of the equalizer FF register bank" in lines 4-5 should be changed to --- a constraint waveform with contents of only  $L_w$  central registers of an equalizer FF register bank ---; "the  $L_w$  central summing nodes of the bank of summing nodes" in line

6 should be changed to --- L<sub>w</sub> central summing nodes of a bank of summing nodes ---;  
“register bank;” in line 9 should be changed to --- register bank. ---.

Appropriate correction is required.

4. Claim 103 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 52. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-103 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement and/or enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claim(s) contains subject matter which was not described in the specification in such a way as to

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enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As indicated in the Drawing section above, the drawings have not been submitted to facilitate understanding of the invention. The written description requirement or enablement requirement is therefore not met.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Agarosi et al. (U.S. Patent No. 6,600,794).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chieh M Fan whose telephone number is (571) 272-3042. The examiner can normally be reached on Monday-Friday 8:00AM-5:30PM, Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Chieh M Fan  
Primary Examiner  
Art Unit 2634

April 16, 2005